



# Los Angeles Regional Water Board Climate Change Strategy

*Water Quality Coordinating Committee*

*Chair Madelyn Glickfeld  
Los Angeles Region*

*October 2018*



# Expected Impacts in Southern California

## Temperatures

- by 2050, annual average temperatures rise by 4-5 °F
- by 2050, 2-6 times more “extreme heat days”
- drought periods increasingly harmful
- by 2050, annual acreage burned increase by 20-30 %

## Precipitation

- small changes to mean precipitation
- more extreme precipitations events

## Snowpack

- 30% less snowfall in Los Angeles area mountains
- seasonal melting 16 days earlier

## Sea Level Rise

- by 2050 : 0.7 – 1.2 ft;
- by 2100 : 1.1 – 3.6 ft; possibly up to 10 ft
- More extreme high sea-level events

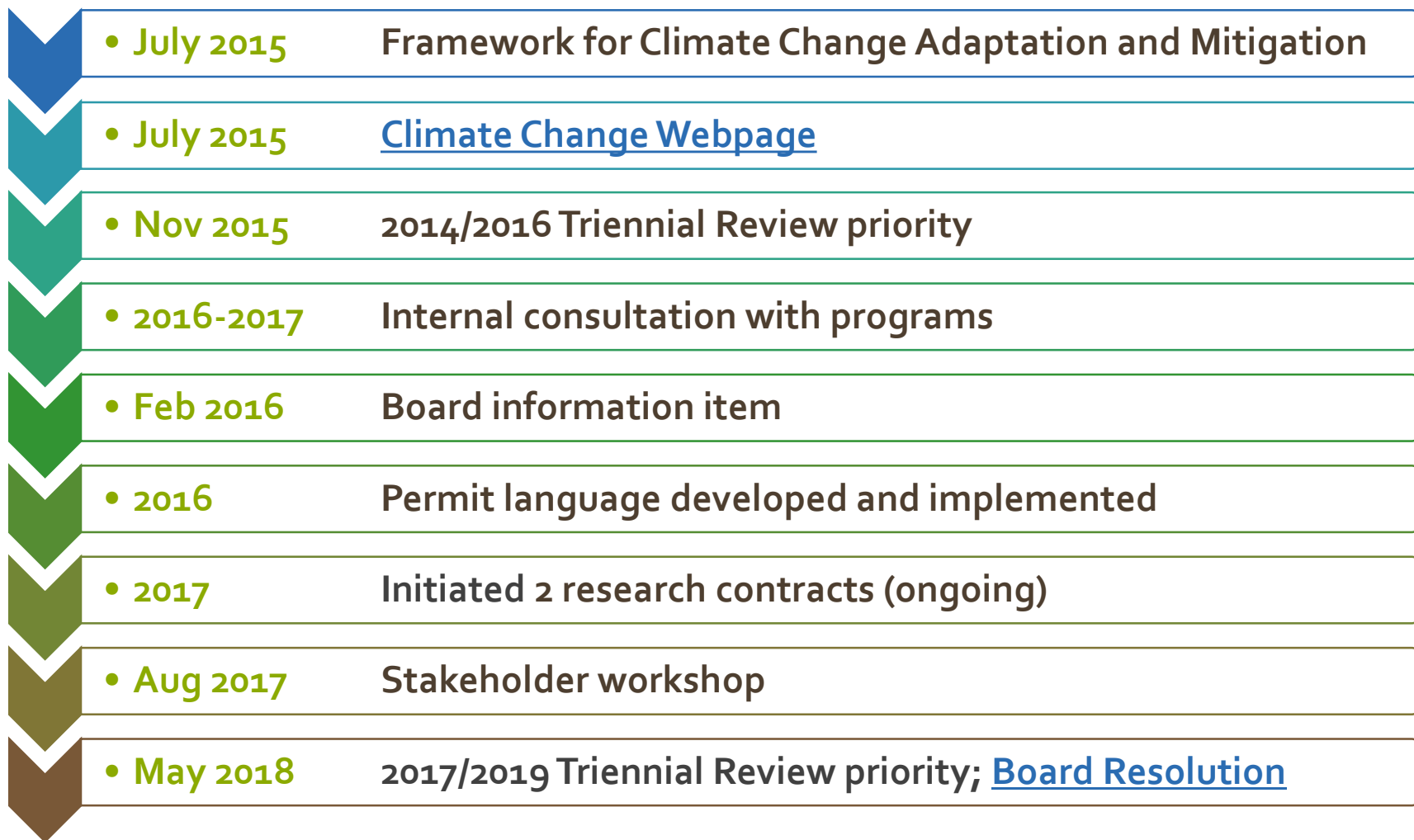
## Ocean Acidification

- By 2100, acidity rise by 150% vs. preindustrial times
- Effect on fisheries, food supply and general ocean ecology



# Regional Water Board Climate Change Strategy

## *Evolution of Regional Implementation*



# Regional Water Board Climate Change Strategy

## Framework

### **Part 1: Current State of Knowledge & Water Quality Regulatory Program Considerations** - July 2015

- Considerations of potential impacts to water quality and standards
- Outline of further programmatic considerations

### **Part 2: Potential Regulatory Adaptation Measures** - in development

- Considerations for each program:
  - Potential impacts
  - Potential adaptation/mitigation measures
  - Research and monitoring needs
  - Areas of potential collaboration
  - Nexus with Environmental Justice

Los Angeles Region  
Framework for  
Climate Change  
Adaptation and  
Mitigation

*Current State of  
Knowledge & Water  
Quality Regulatory  
Program Considerations*

Los Angeles Regional Water Quality Control Board

# Board Resolution – Key Elements

- Continue efforts to develop a strategy for the Los Angeles Water Board's programs to address climate change
- Support the augmentation of local water supplies through stormwater capture, recharge, and reuse
- Incorporate considerations of expected impacts from climate change in the LA Water Board programs (e.g., Orders, SEPs)
- Take into account environmental justice factors when addressing climate change impacts
- Coordinate with partners (e.g., local agencies, universities, regional coalitions) & encourage stakeholders to take actions to help mitigate the impacts of climate change on water quality and beneficial uses
- Continue to collaborate with the State Water Board
- Report periodically on progress regarding implementation of strategy

# Regional Water Board Climate Change Strategy

## *Work Underway*

### Permits

#### ■ Permit Provisions in WDRs:

##### *Climate Change Effects Vulnerability Assessment and Mitigation Plan:*

- Assessment of short- and long-term vulnerabilities
- Plans to mitigate vulnerabilities

**1. Dischargers shall operate and maintain facilities,** treatment operations, associated collection systems and outfalls in ways to preclude adverse impacts to surface or groundwater from impacts predicted to occur due to climate change.

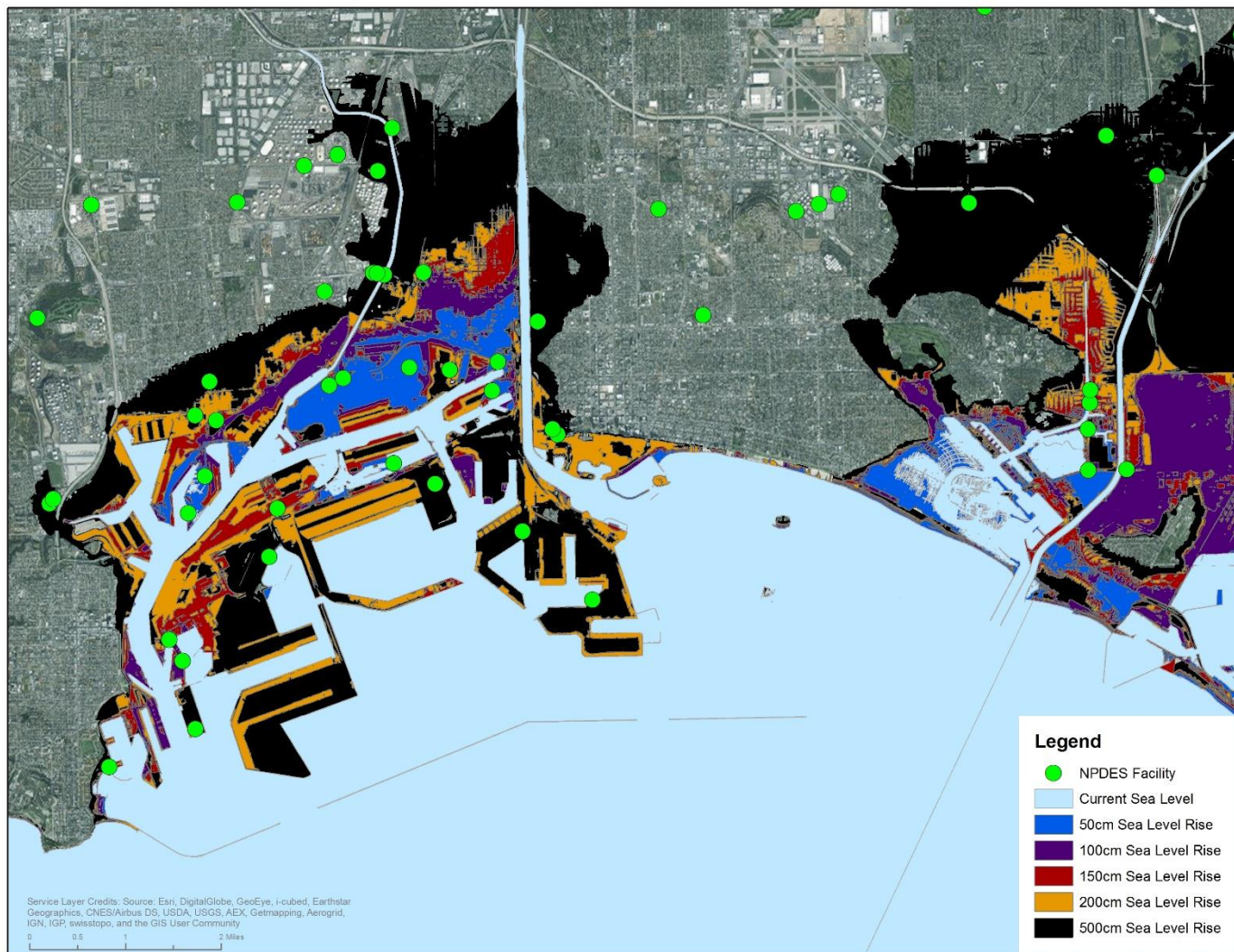
**2. The Discharger shall submit a Climate Change Effects Vulnerability Assessment and Management Plan** (Climate Change Plan) **no later than 12 months after adoption of this permit.** Submittal of the Climate Change Plan is required pursuant to Water Code section 13267. As required by this provision, a regional board may require a person to submit technical or monitoring program reports which the regional board requires. **The Climate Change Plan is needed in order to assess and manage climate change related-effects associated with Discharger operations that may affect water quality.**

The Climate Change Plan shall include an assessment of short and long term vulnerabilities of the facility(ies) and operations as well as plans to vulnerabilities of collection systems, facilities, treatment systems, and outfalls for predicted impacts in order to ensure that facility operations are not disrupted, compliance with permit conditions is achieved, and receiving waters are not adversely impacted by discharges. Control measures shall include, but are not limited to, emergency procedures, contingency plans, alarm/notification systems, training, backup power and equipment, and the need for planned mitigations to ameliorate climate-induced impacts including, but not limited to, changing influent and receiving water quality and conditions, as well as the impact of rising sea level (where applicable) storm surges and back-to-back severe storms that are expected to become more frequent.



# Regional Water Board Climate Change Strategy

*Work Underway*



# Regional Water Board Climate Change Strategy

## *Work Underway*

### Contracts

- Future precipitation and stream temperatures in Los Angeles and Ventura Counties (UCLA)
- Potential hydrologic changes to streams and associated ecological vulnerability in the Regional Water Board region associated with drought and long-term climate changes (SCCWRP)

### Board Resolution

- To acknowledge the need to adapt to, and where possible mitigate the impacts of, climate change in various Board programs/actions
- To briefly summarize the actions the board has already begun to take in some program areas
- To begin to identify some future actions





# Next Steps

*Complete Part 2 of Framework & research contracts*



*Update Basin Plan to reflect findings of Resolution, Framework & research*

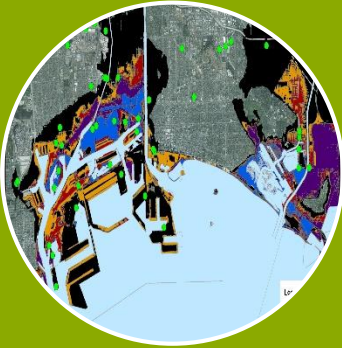


*Implement Framework actions & collaborate with other agencies*

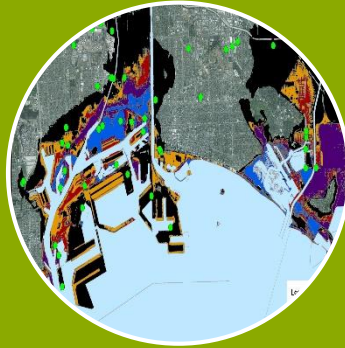


# Next Steps

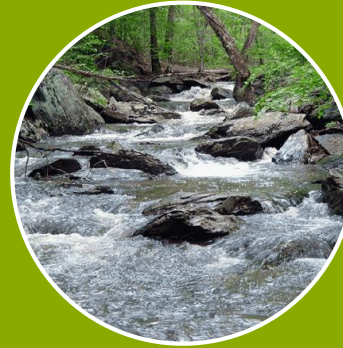
## *Approaches to Prioritize Regional Board Actions*



Map permitted facilities (NPDES & WDR) at risk from sea level rise and flooding



Map remediation and UST sites at risk from sea level rise and flooding



Map ecological vulnerability



Assess relative vulnerability of beneficial uses and water quality objectives





*Acknowledgements:*  
*Region 4 staff*  
*Deborah Smith*  
*Celine Gallon*  
*Renee Purdy*

*Questions?*





*Extra slides*

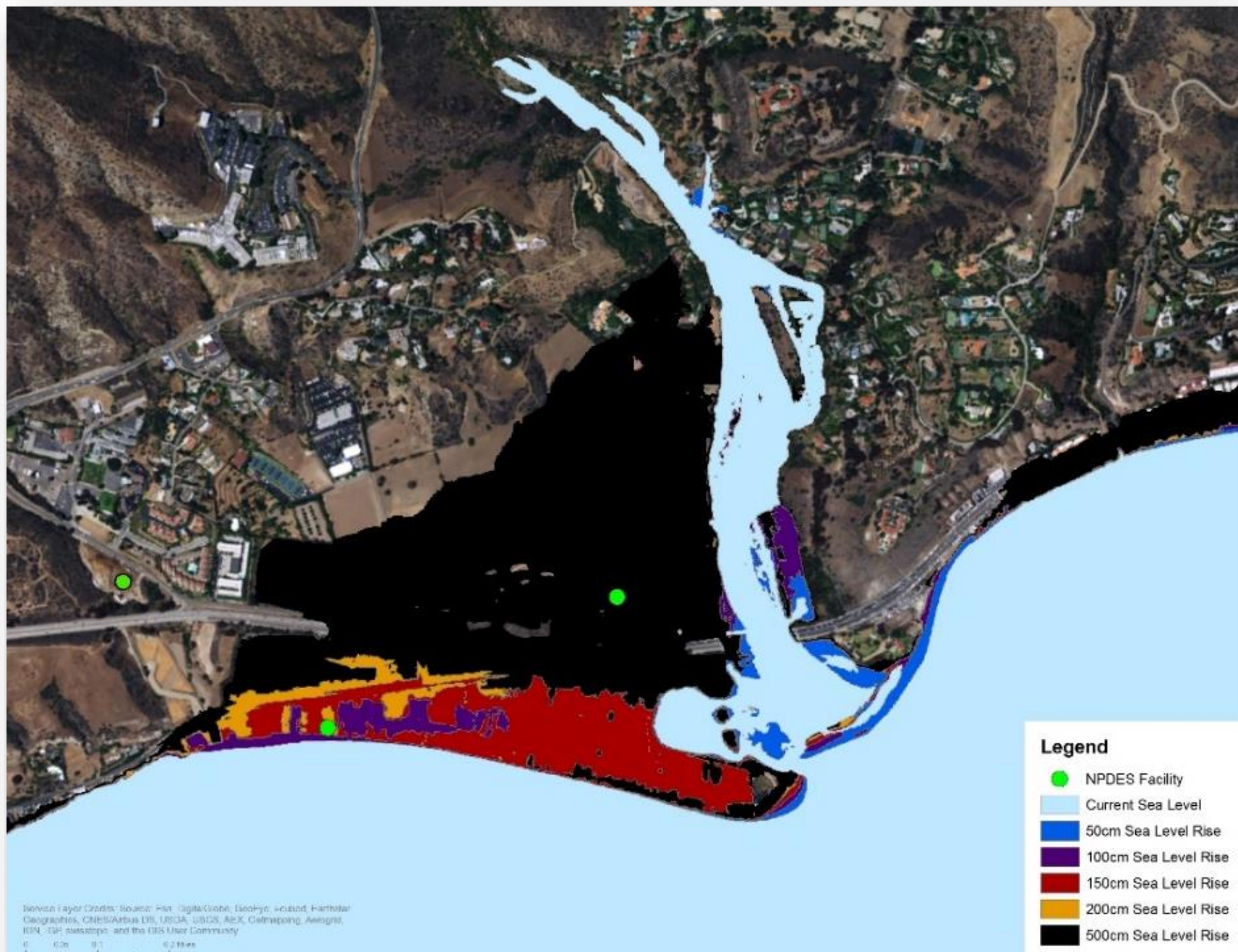
# Board Resolution – Key Elements

- Support the augmentation of local water supplies through stormwater capture, recharge, and reuse for the benefit of our communities, local wildlife and other natural resources
- Incorporate considerations of expected impacts from climate change in the LA Water Board programs
  - Permits and orders
  - SEPs
  - Research and monitoring
  - Data tracking
- Take into account environmental justice factors when addressing climate change impacts.



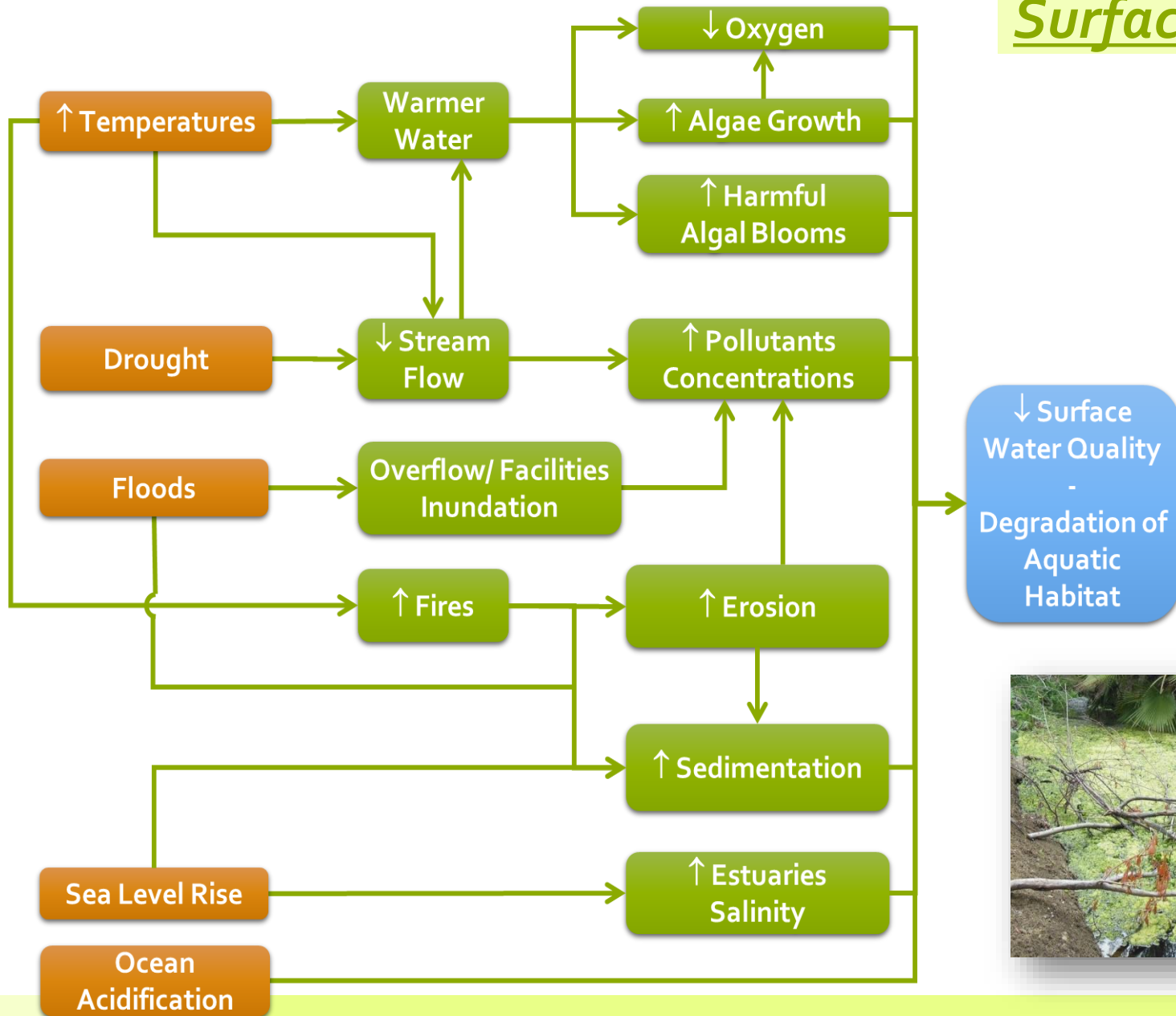
## Key Elements (cont.)

- Coordinate with appropriate partners
- Continue to collaborate with the State Water Board
- Continue efforts to develop a strategy for the Los Angeles Water Board's programs to address climate change
  - Framework Part 2 - *Potential Regulatory Adaptation and Mitigation Measures*
- Report periodically on the progress of implementation actions and key challenges
- Encourage stakeholders to take actions to help mitigate the impacts of climate change on water quality and beneficial uses



# Impacts to Water Quality

## Surface Waters



# Impacts to Water Quality

## Groundwater

